# MULTI-SERVICE SEGMENTATION AND REASSEMBLY DEVICE HAVING INTEGRATED SCHEDULER AND ADVANCED MULTI-TIMING WHEEL SHAPER

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ABSTRACT OF THE DISCLOSURE

A multi-service segmentation and reassembly (MS-SAR) integrated circuit is disposed on a line card in a router or switch. The MS-SAR can operate in an ingress mode so that it receives packet and/or cell format data and forwards that data to either a packet-based or a cell-based switch fabric. The MS-SAR can also operate in an egress mode so that it receives data from either a packet-based or a cell-based switch fabric and outputs that data in packet and/or cell format. The MS-SAR has a data path through which many flows of different traffic types are processed simultaneously. Control path circuitry includes a port calendar, a scheduler and an advanced multi-timing wheel shaper. The MS-SAR can be programmed such individual flows are shaped, or scheduled, or both.